

Remarks

The Examiner has objected to the drawings because the boxes in figures 1 and 2 should have descriptive labels. In response to this objection, appropriate correction to the drawings has been taken. Review and acceptance is requested.

The Examiner has objected to the abstract as being in excess of 150 words. In response thereto, an amended abstract in proper form has been enclosed. Review and acceptance is requested.

Claims 13 through 27 stand rejected under 35 USC 102(e) as being anticipated by US '491.

In responding to this rejection, the Applicant has amended independent claims 13 and 23 to contain the limitations of former claim 14, now cancelled. In so doing, amended claim 13 defines an end time point for the time span which is considered in accordance with the invention for evaluation of parasitic signals up to which the second receiver 110-4 works in accordance with the invention. In particular, the end of the time period is defined to be the threshold time period which corresponds to the spatial separation between the second receiver 110-4 and the transmitter 110-1. Further details concerning the choice of the threshold time point are supported in the disclosure, in particular in paragraph [008] of the publication.

The Examiner has rejected claim 14 stating, at the end of page 1, that the '491 reference discloses utilization of the time window (T_t). The

Applicant respectfully disagrees with this interpretation of the '491 reference for the following reasons.

In particular, the present invention concerns a method for detecting obstacles in a detection region of a detecting device, using for example an ultrasound system. The ultrasound system has a transmitter 110-1 (see figure 1) which sends a transmitted signal at a certain point in time, designated as the transmitting time. The ultrasound system also has a first receiver 110-2 and a second receiver 110-4. The first receiver 110-2 is normally used to receive the transmitted signal coming from the transmitter 110-1 following reflection from the obstacle 2, whereas the second receiver 110-4 is primarily used to carry out the method in accordance with the invention. The second receiver 110-4 is further away from the transmitter 110-1 than the first receiver 110-2. In consequence thereof, a direct signal emanating from the transmitter 110-1 at a certain point in time is incident on the receiver 110-4 at time which is later than that when it is incident on the first receiver 110-2. In accordance with the invention, the time period between the time in which the transmission occurs and the time of reception of the transmitted signal in the second receiver 110-4 is used to monitor the occurrence of interfering signals which could interfere with the detection of the transmitter signal in the first receiver 110-2. This time period is further described in the publication paragraph [008].

In contrast thereto, the conventional system disclosed in the '491 patent due to Nass describes a distance measuring device using ultrasound sensors in which not only a signal emanating from a transmitter S1 (see figure 3) and reflected from an obstacle 0 corresponding (signal K12) is

evaluated, rather also a crossover signal U_{12} which is received directly from the transmitter S_1 by the receiver S_2 . Figure 5 of the Nass reference shows the time dependence of the intensity of a received signal in his device. Intensity maximum I_k at the point in time t_k represents a conventional echo which is received by reflection of the transmitted signal from the obstacle. Prior to the occurrence of the echo signal I_k , at time point t_k , a crossover signal I_{US} is received by the receiver S_2 (figure 3) at time t_U . Nass is concerned with improving a conventional procedure with which the crossover signal I_{US} is filtered out through appropriate definition of a dead time window T_t . Nass improves this conventional procedure by proposing that the crossover signal be evaluated at the time point t_U to determine whether or not an interference is present in the ultrasound system which could, for example, be caused by soiling of a membrane in the transmitter S_1 . In accordance with the teaching of Nass, these types of interferences manifest themselves through differences in amplitudes of the crossover signal at the point in time t_U . Therefore, the procedure according to Nass is based on the principle of evaluation of crossover signals which are directly transmitted from the transmitter S_1 to the receiver S_2 , without having been reflected by the obstacle. In contrast to the present invention, the procedure suggested by Nass makes use of the signal which is actually transmitted directly from the transmitter S_1 and which produces a crossover signal in the receiver S_2 detected at time t_U .

This procedure of Nass can be contrasted to the method in accordance with the invention, since the inventive method is not concerned with evaluation of the signal emanating directly from the transmitter 110-1. In order to avoid evaluation of this direct transmitted signal, the method

defined in accordance with the invention utilizes the above defined time span between the time in which the transmittal signal is sent and the threshold time point previously defined in former claim 14, corresponding to the time of travel of an ultrasound signal from the transmitter 110-1 to the receiver 110-4. Therefore, in accordance with the invention, only that time period is evaluated during which it is not possible for any signal whatsoever which emanates from the transmitter 110-1 to be received in the receiver 110-4 (see also paragraph 8 of the publication). Therefore, the Nass references cannot be construed to suggest the limitations of the present claim or to anticipate same.

The invention provides for a clear definition of a period in time in which interfering signals can be detected in a manner not suggested by prior art and therefore represents an improvement over that prior art. Towards this end, the invention as now claimed is sufficiently distinguished from the prior art of record to warrant patenting in the United States. The dependent claims of record inherit the limitations of the base claim and are therefore similarly distinguished from the prior art of record for the reasons given. Passage to issuance is therefore requested.

No new matter has been added in this amendment.

13

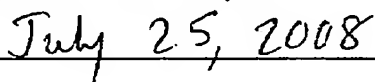
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